Through the transverse bore 124 of the base portion 122, the annular chamber 146 is connected with a line (not shown), through which a fluid, such as N_2, can be conducted into the annular chamber 146.

In the nozzle body 144, a cavity 150 is formed, which is connected with a nozzle 152 disposed above it. The nozzle 152 rests on a central axis of the nozzle plate 140 and is directly perpendicularly upward. The cavity 150 disposed under the nozzle 152 is connected with a line 154 which extends perpendicular to the plane of the drawing, and which is guided through the annular chamber 146 to an outer side of the base 120, although this is not shown in the figures. Through the line 154, the cavity 150, and thereby the nozzle 152, can be loaded with a fluid, for example a rinsing liquid or an etching liquid. As described above with reference to the central nozzle of the first embodiment, a vacuum also can be applied to the nozzle 152.

In the nozzle plate 140, nozzles 142 are provided, as noted above, in a similar manner as the nozzles 18 are arranged in the nozzle plate 17 of the first embodiment. In addition, near the nozzles 142 in the area of the nozzle body 144, inwardly slanted nozzles 156 are provided which are also connected with the annular chamber 146. A fluid flow can be directed via the nozzles 156 in the direction of the central axis, in order to produce an improved flow in this area, in particular upon drying of a substrate disposed above.

On the base portion 122, a further, upwardly extending flange 160 is formed near the flange 130, which essentially corresponds to the overflow collar of the second embodiment shown in Fig. 5. Between the overflow collar 160 and the flange 130, an upwardly opening chamber 164 is formed. The chamber 164 is connected with an outlet (not shown), through which the liquid in the chamber 164 can be drained.

In the area of the transverse bore 124, the base portion 122 is wider, as can be seen on the left side of Fig. 6. In this area, a wider, upwardly extending flange 166 is provided near the flange 160. Between the flanges 160 and 166, an engagement for a swivel arm (not shown) to move the device 100 is formed.

The operation of the rinsing and drying device equates essentially with the above-described operation. However, the liquid level in the chamber 164 is held each time below an upper edge of the flange 160 in order to prevent the liquid from flowing over the flange 160.

During the rinsing of a wafer, an outer side of the substrate carrier 103 is cleaned by rinsing liquid, which is conducted via the body 108 to the outer side of the substrate carrier 103.

During the subsequent drying of the wafer, the rinsing of the outer side of the substrate carrier 103 is discontinued. Further, a vacuum is applied to the central nozzle 152 and, via the nozzles 142

and 156, a flow of a drying gas, such as N_2, is directed at the wafer. In this way, a flow directed to the central axis of the nozzle plate is produced via the inwardly slanted nozzles 152. Thus, an improved drying of the wafer portion disposed opposite to the nozzle 152 is achieved.

Although the present invention has been described with reference to the previous embodiments, the invention is not limited to the specialized, represented embodiments. For example, the nozzles 55 in the overflow collar 50, as well as the outlet 52, are not absolutely necessary, since the flow produced by the nozzles 18 and 38 are sufficient to also produce a flow along the outer side of the substrate carrier. Alternatively, an outlet could also be formed in the annular member 11 of the base 10, in order to drain liquid from the annular chamber 53. The device of the present invention is also not limited to the rinsing and drying device, since the device is also suited for any type of substrate processing or treatment, such as, for example, etching treatment with an etching medium, in which a flow must be produced on the substrate's upper surface. The device could also be utilized as a combination etching/rinsing/drying device, with which the respective processes are sequentially performed. Depending on the shape of the substrate, the device can also be used for other shapes than the round shape described herein, and the elements of the device described above, in particular, can be used, respectively, also